IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A device comprising:

a plurality of implantable electrodes, the electrodes to sense electrical activity of a heart; and

an implantable medical device coupled to the electrodes, the implantable medical device including:

a plurality of sense amplifiers coupled to the electrodes, the sense amplifiers to produce analog electronic signals representative of the electrical activity;

a programmable sampler coupled to the sense amplifiers;

a controller coupled to the programmable sampler, wherein the controller programmably enables the sampler to selectively sample the electronic signals; and

configurable memory coupled to the controller for storage of the sample values, wherein the memory is configurable into a number of buffers by the controller based on the programmable sampling, and wherein the memory includes a buffer length table.

2. (Original) The device of claim 1, wherein the controller includes one or a combination of hardware, software and firmware to configure memory by programmably determining a number of buffers and sizes of the buffers based on types of sensed electrical activity sampled.

3. (Original) The device of claim 2, wherein each configured buffer includes:

a starting address register to store a starting memory address for the buffer;

a length register to store a configured size of the buffer; and

a control register to indicate a type of sense activity data provided to the buffer.

4. (Original) The device of claim 3, wherein each configured buffer includes a synchronization register to store a representation of time to indicate a relationship among the data stored in the plurality of configured buffers.

5. (Original) The device of claim 4, wherein each buffer further includes an index register to indicate a location within the buffer to write data.

6. (Original) The device of claim 3, wherein a type of sensed electrical activity determines a rate at which data is sampled on the sense amplifier and the size of the configured buffer.

7. (Original) The device of claim 3, wherein at least one user requests a rate at which an electronic signal is sampled, and the controller configures the size of a buffer based on the requested rate.

8. (Original) The device of claim 3, wherein the buffer is a circular buffer and further includes a rollover indicator.

9. (Original) The device of claim 3, wherein the device further includes at least one analog-to-digital (A/D) converter coupled to the sense amplifiers to convert the analog electronic signals into digital data representative of the signals.

10. (Original) The device of claim 9, wherein the A/D converter further includes a digital signal processor (DSP).

11. (Original) The device of claim 10, wherein the data representative of the signals is filtered before transfer to the buffers.

12. (Original) The device of claim 11, wherein the buffer stores filtered data sampled from an accelerometer.

13. (Original) The device of claim 3, wherein the memory further includes a channel configuration table, the table containing definitions of types of sensed electrical signals and wherein the type of signal sensed defines the size of buffers.

14. (Original) The device of claim 13, wherein the type of sensed electrical signal is an electrogram from an atrium.

15. (Original) The device of claim 13, wherein the type of sensed electrical signal is an electrogram from a ventricle.

16. (Original) The device of claim 13, wherein the plurality of sense amplifiers further includes a sense amplifier in communication with an accelerometer.

17. (Original) The device of claim 13, wherein the type of sensed electrical signal is an unfiltered signal from an accelerometer.

18. (Original) The device of claim 13, wherein the type of sensed electrical signal is minute volume.

19. (Currently Amended) The device of claim 3, wherein the memory further includes a ~~buffer length~~ reserved lead configuration table.

20. (Original) The device of claim 3, wherein a default buffer length table defines buffer lengths at system reset.

21. (Original) The device of claim 1, wherein at least one electrode is in communication with a high energy defibrillation lead.

22. (Original) The device of claim 1, further comprising a telemetry circuit in communication with the controller and an external device, wherein the controller transmits data from the configurable buffers to the external device.

23. (Original) The device of claim 22, wherein buffer lengths are configured based on a transmission rate of the telemetry link and a rate at which data is sampled from the sense amplifiers.

24. (Currently Amended) A device comprising:

a plurality of implantable electrodes, wherein at least one electrode is coupled to an implantable lead; and

an implantable pulse generator coupled to the electrodes and at least one lead, the pulse generator including:

a plurality of sense amplifiers coupled to the electrodes, the sense amplifiers adapted to sense electrical activity of a heart and produce analog electronic signals representative of the activity;

at least one analog-to-digital (A/D) converter coupled to the sense amplifiers to convert the signals into digital data representative of the signals;

a controller coupled to the A/D converter wherein the controller samples data provided by the sense channels, and wherein the controller initiates sampling at least one electronic signal in response to at least one request for data from at least one user; and

memory coupled to the controller, wherein the controller programmably configures memory into a reserved configuration of buffers based on a lead configuration of the implantable pulse generator, and wherein the memory includes a buffer length table.

25. (Original) The device of claim 24, wherein the reserved configuration is contained in a look-up table and wherein the buffers are configured according to the look-up table at system reset.

26. (Original) The device of claim 25, wherein the reserved configuration is defined based on a priority given to the sense channels.

27. (Original) The device of claim 26, wherein the priority is based on a rate at which data is being collected.

28. (Original) The device of claim 24, wherein data is collected at a rate selectable from among 100 Hertz (Hz), 200 Hz and 400Hz.

29. (Currently Amended) A method comprising

sensing electrical activity at a plurality of locations of a heart as a result of requests from at least one user;

converting the sensed activity into data suitable for storage in memory; and

programmably configuring a memory included in an implantable medical device into a plurality of buffers and a buffer length table, wherein the buffers [[to]] accept the data based on a number of requests and types of sensed activity requested by the at least one user.

30. (Original) The method of claim 29, wherein programmably configuring a memory into buffers includes:

determining lengths and starting addresses for the buffers from types of data to be collected;

indicating the types of data to be collected in the buffers; and

determining timestamps for the buffers to indicate a time relationship among the data stored in the plurality of buffers.

31. (Original) The method of claim 30, wherein programmably configuring a memory into buffers includes determining pointer values to buffer locations.

32. (Original) The method of claim 29, wherein the request includes electrogram history data to be stored.

33. (Original) The method of claim 29, wherein the request includes real time electrograms to be sent over a telemetry link.

34. (Original) The method of claim 29, wherein the request includes sensed electrical activity for a morphology comparison.

35. (Original) The method of claim 29, wherein the request includes the sensed unfiltered electrical activity of an accelerometer.

36. (Original) The method of claim 29, wherein the request includes the sensed filtered electrical activity of an accelerometer.

37. (Original) The method of claim 29, wherein the request includes the sensed electrical activity of an evoked response.

38. (Original) The method of claim 29, wherein the request includes the sensed electrical activity at a defibrillation lead.

39. (Original) The method of claim 29, wherein the request includes minute ventilation data.

40. (Original) The method of claim 29, wherein the request includes that data be sampled within a range from 100 Hertz (Hz) to 400Hz.

41. (Currently Amended) A system in communication with electrical activity of a heart, the system comprising:

an implantable medical device, wherein the implantable device includes:

a plurality of sense channels adapted to provide analog electronic signals representative of the electrical activity;

at least one analog-to-digital (A/D) converter coupled to the sense channels to convert the signals into digital data representative of the signals;

a controller coupled to the A/D converter wherein the controller samples data provided by the sense channels, and wherein the controller initiates sampling at least one sense channel in response to a request for data from at least one user;

memory coupled to the controller, wherein the controller predetermines a configuration of a portion of the memory, the configuration including a number of buffers and sizes of buffers, to transfer sampled sense channel data from the at least one A/D converter to a configured buffer, and wherein the memory includes a buffer length table; and

a telemetry circuit coupled to the controller to transmit data; and

an external device to communicate with the implantable device, wherein the external device provides requests from at least one user to the implantable medical device, the request to sense types of electrical activity, and wherein the external device retrieves the requested data from the implantable medical device.

42. (Original) The system of claim 41, wherein each configured buffer includes:

a length register to store a configured size of the buffer;

a synchronization register to store a representation of a time to indicate a relationship among data stored in a plurality of configurable buffers; and

a control register to indicate a type of sense channel providing data to the buffer.

43. (Original) The system of claim 42, wherein the implantable medical device is a pulse generator.

44. (Original) The system of claim 43, further including at least one electrode adapted to sense electrical signals related to activity of a heart and to deliver electrical therapy to a heart.

45. (Original) The system of claim 44, wherein the implantable medical device further includes a therapy circuit coupled to the at least one electrode to deliver electrical therapy to the heart.

46. (Original) The system of claim 45, wherein the system further includes at least one sensor to provide electrical signals representative of physical activity of a patient.

47. (Original) The system of claim 41, wherein the at least one sensor includes an accelerometer.

48. (Original) The system of claim 41, further comprising processing circuitry in communication with the external device, the processing circuitry to trend the requested data and to provide data to display trending of the data retrieved from the implantable medical device.

49. (Original) The system of claim 41, wherein the external device includes a communication module to transfer the requested data retrieved from the implantable medical device to storage in a database.

50. (Original) The system of claim 49, wherein the database is suitable to be accessed via a global computer network.

51. (Original) The system of claim 50, wherein the external device includes a wireless local area network (LAN), and the external device communicates with the implantable pulse generator with the wireless LAN.

52. (Original) The system of claim 51, wherein the external device is connected to a global computer network.